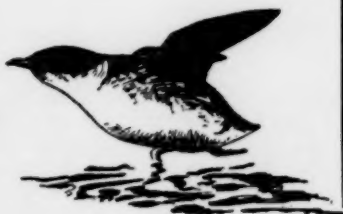


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THE STATUS OF BARROW'S GOLDEN-EYE IN EASTERN WASHINGTON

STANLEY W. HARRIS, CHARLES L. BUECHELE and CHARLES F. YOCOM

INTRODUCTION

Barrow's Golden-eye (*Bucephala islandica* (Gmelin)) is confined to two widely separated ranges along the eastern and western edges of North America with an extension of the eastern range into Greenland and Iceland (Kortright, 1943). The present paper summarizes the knowledge of its status in the eastern portion of the state of Washington.

The rather unusual presence of breeding Barrow's Golden-eyes in arid eastern Washington was first reported in 1948 when Yocom (1951) observed broods on Lake Lenore National Wildlife Refuge, Grant County. The unusual circumstances of this breeding population centered around the fact that here were broods of a species typically associated with tree nesting sites occurring on an open "scabrock" lake (Bretz, 1928) in a totally treeless region. Observations made on this population since 1948 constitute the bulk of this paper.

In addition to Lake Lenore, Golden-eyes are known to breed in the following eastern Washington localities (See Fig. 1 for locations):

1. Hudson (1947) recorded broods on Lake Chopaka, Okanogan County, in a region and under conditions very similar to those described for British Columbia by Munro (1939).
2. Broods were first recorded in 1952 on the equalizing reservoir of the Columbia Basin Irrigation Project north of Coulee City, Grant County, by Allen Greene, U. S. Fish and Wildlife Service. This area was first flooded during the summer of 1951.
3. Broods were reported on Jameson Lake in Moses Coulee, Douglas County, in 1951 and 1952 by Donald S. Galbreath, State of Washington Department of Game.
4. A single brood was observed by Galbreath on a scabrock pothole on the rim of the Grand Coulee near Park Lake, Grant County, in 1952.
5. Golden-eye broods were seen at Cooper Lake, Kittitas County, and near Rimrock Lake, Yakima County, in 1948 by Wendell H. Oliver, State of Washington Department of Game (Yocom, 1951).
6. Other broods of Golden-eyes have been seen by Henry A. Hansen, State of Washington Department of Game, and Yocom on lakes in wooded mountainous areas of Okanogan, Ferry, Stevens, and Spokane Counties.

DESCRIPTION of LAKE LENORE HABITAT

Lake Lenore is one of several lakes which lie in depressions in the floor of the Lower Grand Coulee, a part of the abandoned channel of the glacial Columbia River (Bretz, 1932). The lake is situated in a semi-arid region where the dominant vegetation is a sagebrush-bunchgrass association (Daubenmire, 1942). A large part of the lake shoreline is bordered by sheer 1,000-1,500 foot basalt cliffs or steep basalt talus slides that drop directly into the water. In the few places where there is a gradual sloping shoreline, the sparse vegetation is dominated by various grasses and shrubs such as *Hordeum jubatum*, *Agropyron spicatum*, *Elympos cinereus*, *Bromus tectorum*, *Distichlis stricta*, *Artemisia tridentata*, *Grayia spinosa*, *Chrysothamnus* spp., etc. Clumps of *Amelanchier florida*, *Ribes cereum*, *Phladelphus lewisii*, *Rosa* spp., etc., are found on the more protected sites. *Scirpus americanus*, *S. nevadensis*, and *Juncus balticus* are found in shallow areas and along the shore. *Potamogeton zosteriformis*, *P. pectinatus* and small isolated patches of *Scirpus acutus* occur in deeper waters. Large saltgrass (*Distichlis stricta*) flats extend back from the

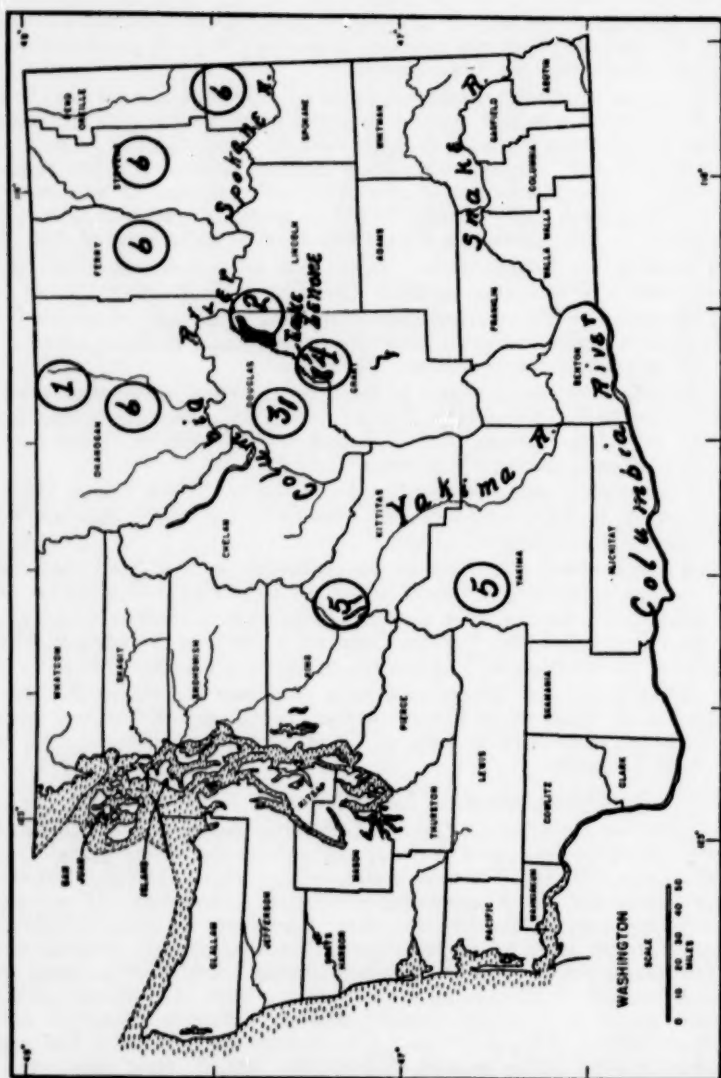


Fig. 1—Map of Washington showing locations of places mentioned in text. Numbers on map correspond to known breeding places (see text).

south end and parts of the east side of the lake. This alkaline lake supports high populations of microcrustaceans (Fairbanks, 1950).

The equalizing reservoir, Jameson Lake, and the scabrock pothole habitats are very similar to that of Lake Lenore.

STATUS IN WINTER AND SPRING

Barrow's Golden-eye winters on rivers and unfrozen alkaline lakes throughout eastern Washington. There are two important river wintering areas in eastern Washington known to the authors. One area is along the Lower Snake River from Central Ferry, to the vicinity of Riparia, Whitman County, and the other is along the Yakima and Columbia Rivers near Richland, Benton county. In winter, Golden-eyes along the Snake are usually found in rapids where they feed by making repeated dives as they drift through the swift flowing areas. Upon arriving at the lower end of these rapids they fly to the upper end to repeat the process.

Fragmentary observations on Lake Lenore during the winter indicate that some Barrow's Golden-eyes stay there unless frozen out (Harris and Yocom, 1952), in which case they apparently move to nearby streams.

With the advent of thawing weather in late February and early March, the birds leave their wintering grounds and move generally northward across the state utilizing newly opened potholes and lakes throughout the channeled basalt scablands (see Bretz, 1928 for a geological discussion of these scablands) of the Columbia Plateau of Washington. The peak of this movement occurs during March and early April and by late April, Barrow's Golden-eyes are uncommon except in breeding areas (Yocom, 1951; Jeffrey, 1947; Harris, 1952).

BREEDING ON LAKE LENORE

Territory:

By mid-April of each year, most of the birds remaining on Lake Lenore are resident pairs on territory. A complete survey of the lake during the period April 6-10, 1952 revealed a minimum population of 17 territorial pairs plus an undetermined number of birds that exhibited no territorial behavior. Following a similar study in 1953, the population was estimated at 15-20 pairs.

Golden-eyes were observed occupying territories along the shoreline where sheer basalt cliff walls dropped into the water. In a coverage of about three miles of the lake shore by boat on April 8, 1952, the behavior of four pairs was noted. Each pair swam along the cliff ahead of the boat. When a certain place was reached by a pair it stopped, swam back and forth nervously until the boat approached to within 50-100 yards, and then flew out around the boat to alight back along the cliff wall near its original position. These observations strongly suggest territorial affiliations for a definite area with well defined boundaries along the cliff. On the previous day, observations made from the highway on the opposite side of the lake had indicated the regular occurrence of pairs along this shoreline. In April of 1953 the pairs were similarly distributed. Munro (1939) has also observed well defined territories on large lakes in British Columbia.

Nesting:

Barrow's Golden-eye belongs to that group of ducks which typically nest in cavities in trees (Bent, 1925). Munro (1939) has reported on the status of the species in the interior of southern British Columbia, where it breeds on alkaline lakes which are usually quite open and free from tules and contain high populations of amphipods, phyllopods, and other microcrustaceans. These lakes occur in timbered regions where suitable nest trees are available.

The species is not, however, an obligate tree-cavity nester. Edwards (1953) recorded the use of abandoned crow nests in trees at the edge of a

lake in British Columbia. Millais (1913) found nests in Iceland that were placed in holes in banks or lava rocks, on low islands under shrubs and in grass, and in the outer walls of peat shelters which had been erected for sheep. Munro (1918) found a nest in the hay loft of an abandoned barn in British Columbia and later (Munro, 1935) found one in the burrow of a Yellow-bellied Marmot. Munro (1939) states that the first essential of a breeding lake is food and that lakes are apparently selected on that basis rather than on the availability of nest trees.

The abundant supply of orthopod food is probably an important contributing factor to the presence of breeding Barrow's Golden-eyes on the eastern Washington scabrock type habitat even though there are no available nest trees near any of these lakes.

No actual nest sites were located at Lake Lenore, but observations indicate that the ducks use some of the abundant holes in the rotten basalt cliffs. One of these, containing grass and twigs, was located on April 6, 1952 just inshore from the territory of a pair of Golden-eyes. The female of the pair flew back and forth quacking nervously during the time that the hole was under inspection. This hole was about 12 feet up a sheer cliff face that was 100 feet back from the water.

On June 6, 1950 three females were observed flying about a cliff. They circled several times, and one of the females attempted to alight on the cliff face about 200 feet above the lake and 30 feet above the talus slide. Broods:

Limited brood counts have been made on Lake Lenore each year since 1948. Careful brood surveys of the lake were made in 1949, 1950, and 1952 in July during or after the peak of the hatch. These data are shown on Table 1.

Table 1
BROOD DATA
(Average brood size listed in parenthesis below number of broods)

Date	Place	Downy to ½	½ to ¾	¾ to full grn.	un.class	Total
8 July 48	Lenore	2 (9.0)				2 (9.0)
20 July 49*	Lenore	3 (7.3)	3 (10.3)**	3 (4.7)		9 (7.4)**
6 June 50	Lenore	2 (9.5)				2 (9.5)
20 July 50*	Lenore	2 (6.0)	6 (6.3)	1 (8.0)		9 (6.4)
12 June 51	Lenore	2 (4.5)				2 (4.5)
12 July 51	Lenore	2 (5.5)				2 (5.5)
17 June 52	Lenore	6***				6***
1 July 52*	Lenore			3 (6.6)	5 (9.2)	8 (8.2)
24 July 52	Eq. Res.		7 (6.3)			7 (6.3)
1 June 52	Pothole	1 (9.0)				1 (9.0)
TOTAL		12 (6.8)	18 (7.3)**	7 (6.0)	5 (9.5)	42 (7.2)**

* Complete survey of lake.

** Includes one brood of 17.

*** Number of young in each brood not determined; not included in total below.

Care was taken to exclude from the records all possible duplicate counts of broods on any one particular date. From the available data it can be concluded that the lake produced a minimum of nine broods each year in 1949, 1950, and 1952. To determine how many additional broods were reared would have required intensive full time study.

Concerning the time of the hatch, the Lake Lenore data corroborate that from British Columbia. Cowan (1948) writes that the peak of the hatch in British Columbia is during the last part of June. Calculating backward from observed brood ages for Lake Lenore it appears that the earliest broods were hatched about June 1 each year and that the bulk appeared to have been hatched near July 1.

POSTBREEDING AND FALL

Adult males have been seen rarely in summer in eastern Washington and appear to be rare in fall in this area; thus the location of the breeding male birds during the postbreeding period is unknown. Both Munro (1939) and Hudson (1947) have previously noted this absence of adult males on the breeding grounds during the postbreeding period. Yocom and Henry A. Hansen have seen adult males on rare occasions in the channeled scabland lakes of eastern Washington during the summer. One male was seen on Halfmoon Lake, northwest of Othello, Adams County, June 28, 1948; a male in partial eclipse plumage at Alkali Lake, Spokane County, June 22, 1950; four golden-eyes believed to be this species seen at Stubblefield Lake, near Cheney, Spokane County, 11 July 1950; four unidentified golden-eyes seen on a lake in northwestern Whitman County, 31 July 1950. The summer of 1950 was unusual from the standpoint of seeing golden-eyes and many buffleheads on the lakes in eastern Washington during the months of July and August. Apparently none of these birds were produced on these lakes for many of the lakes were under observation throughout the brood season.

Fall migration generally occurs at the time of the freeze-up and apparently consists of a short movement to the wintering grounds.

SEX RATIOS

Table 2 summarizes the sex ratio data that have been obtained from flock counts made during the period January-May. Admittedly errors may have occurred due to similarities in the plumages of females and juvenile males and the possibility of including female American Golden-eyes in the counts; field observations indicate, however, that the two species do not associate with each

Table 2
SEX RATIO DATA

Date	Place	Males	Females	Ratio	Months Count Made
1950	Snake River	29	18	161:100	Feb., Apr.
1952	Snake River	12	16	75:100	Jan. Mar., Apr.
1953	Snake River	6	5	120:100	Jan.
1951	O'Sullivan Dam	11	9	122:100	Feb., Mar., Apr.
TOTAL		58	48	121:100	(Migrate & Wtr.)
1950	Lenore	23	21	110:100	April
1951	Lenore	5	3	167:100	May
1952	Lenore	49	45	109:100	April
1953	Lenore	17	12	142:100	April
TOTAL		94	81	116:100	(Res. Breeding)

other even on the wintering grounds to a great extent. Both species winter along the Snake River but the Barrow's Golden-eyes seem to restrict themselves to certain areas along this river.

The Lake Lenore data were collected each year in April and May when the resident breeding population was present on the lake. All of the remaining counts are from migrating and wintering flocks.

ACKNOWLEDGEMENTS

The authors sincerely thank Donald S. Galbreath, Henry A. Hansen, and Wendell H. Oliver of the State of Washington Department of Game and Allen Greene of the U. S. Fish and Wildlife Service for help with the field work.

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Nesting Record of the Arkansas Kingbird in Western Oregon

On July 29, 1954, the writer observed the nest of an Arkansas kingbird, *Tyrannus verticalis*, on a transformer arm of an electric power pole at Camp Adair, an abandoned army training center located five miles north of Corvallis, Benton County, Oregon. Attention was directed to the nest by the adult birds' continual chatter as they called the young from the nest. One young was discovered on the ground and another observed to fly from the nest to a nearby building. Two other young remained on the edge of the nest.

The Arkansas kingbird is a frequent but uncommon visitor to the Willamette Valley. Jewett and Gabrielson, in their book "Birds of Oregon," report a previous nesting record for Benton County. These are the only two nesting records of this bird from the Willamette Valley area.—CHESTER E. KEBBE, Portland, Oregon, August 16, 1954

SUMMER MORTALITY OF JUVENILE BLACK-TAILED DEER IN WESTERN WASHINGTON

JAMES H. BRIGHAM

On the Clemons Tree Farm near Elma, Washington, the yearly fawn crop is reduced over 50 percent prior to the fall hunting season. A study was begun June 8, 1953 in an effort to determine what factors were causing this mortality.

Beginning in May and continuing through September of that year scats of the coyote (*Canis latrans*) were collected. The purpose of this was to obtain information on the importance of black-tailed deer (*Odocoileus hemionus columbianus*) in the diet of the coyote. The discussion below covers the methods and results of the analysis of this material.

The method of analyzing the material and techniques adopted were based on a predator food habits study initiated on the Clemons Tree Farm in 1949. Two progress reports from that study (Harris and Zwickel, 1950 and Humphrey and Hastings, 1950) were used extensively by the author during the current study.

SCAT ANALYSIS TECHNIQUES

The dry method of scat analysis was used. The scat was broken apart, the different items separated and then identified. This method is simple and fast and makes it possible to discount material stuck to the outside of the scat and obviously not originally part of the scat. A record was kept of the items occurring in the individual scats and estimates were made of the percentage which each item made up of the total volume of the scat.

Hair samples of mammals common to the area were collected and used for comparison with hair found in the scats. In a food habits study it would be necessary to identify as accurately as possible all the animal and vegetable components of the scats. In this particular study the emphasis was placed on the correct identification of deer remains only. Deer hair is much coarser than the hair of other most commonly occurring mammals such as the Washington hare (*Lepus americanus*) and the mountain beaver (*Aplodontia rufa*). If animal remains could be correctly identified as some particular species other than deer they were recorded as such. Remains of birds and insects were recorded under those general categories. Vegetative material was recorded as plants and no effort was made to determine the relative importance of various species.

While hair was the most commonly occurring mammal remain, teeth and claws were also sometimes present and in those cases provided reliable means for identification of the smaller mammals. Teeth were especially important in the identification of the deer mouse (*Peromyscus maniculatus*), chipmunk (*Eutamias townsendii*), raccoon (*Procyon lotor*), weasel (*Mustela* sp.), and the mountain beaver. Deer hoofs and teeth occurred but not often enough to be relied upon for confirmation of all deer remains.

DISCUSSION

The problem of possible predation on newly born animals is not a new one. Leopold et al (1951, pp. 59-60) collected scats of the coyote and the black bear (*Ursus americanus*) before and after the peak of fawning. Of 27 bear scats collected before fawning deer remains were found in 4 per cent. This figure went up to 12 per cent in the 81 scats collected after the peak of fawning. A rise from 33 per cent to 44 per cent in the occurrence of deer hair in coyote scats collected before and after the peak of fawning was also noted. These workers cite the results that Darby (1947) found in examining 666 coyote stomachs. His figures showed a year-long average of 19 per cent for the occurrence of deer remains, while during the fawning period it was 37 per cent. Chatelain (1950, p. 232) working in Alaska found similar trends in the case of bear-moose relationships. Prior to birth of the calves the occurrence of

moose (*Alces americans*) remains in bear scats was 1.5 per cent. This figure rose to 26.3 per cent during and immediately following calving. Within a month after calving the figure dropped to zero. By this time the bears apparently had changed to the spawning salmon and ripening berries. Murie (1944, p. 192) shows an increase from zero to 14 per cent between May and July in the occurrence of caribou (*Rangifer arcticus stonei*) in scats of the grizzly bear (*Ursus toklat*). During the period of August, September and October this figure dropped to 2 per cent. There was a corresponding increase in the use of many berries during the late summer and fall. The work of Ferrel et al (1953, p. 308, 322) shows a similar seasonal trend based on the analysis of 2,222 coyote stomachs from all parts of California. Along the coastal region the expected drop in the occurrence of deer remains during late summer does not occur. This may largely be explained by the fact that hunting season is open in these areas at this time and deer may readily be available as a result of crippling. In the Inland-Sierra Region there is a definite peak at the time of fawning followed by a drop during the late summer. The hunting season is in the fall in this area and thus any crippling loss would not be available for about two or three months following fawning. During the intervening period there is an increase in the use of small mammals such as the jackrabbit (*Lepus californicus*) and the cottontail or brush rabbit (*Sylvilagus spp.*).

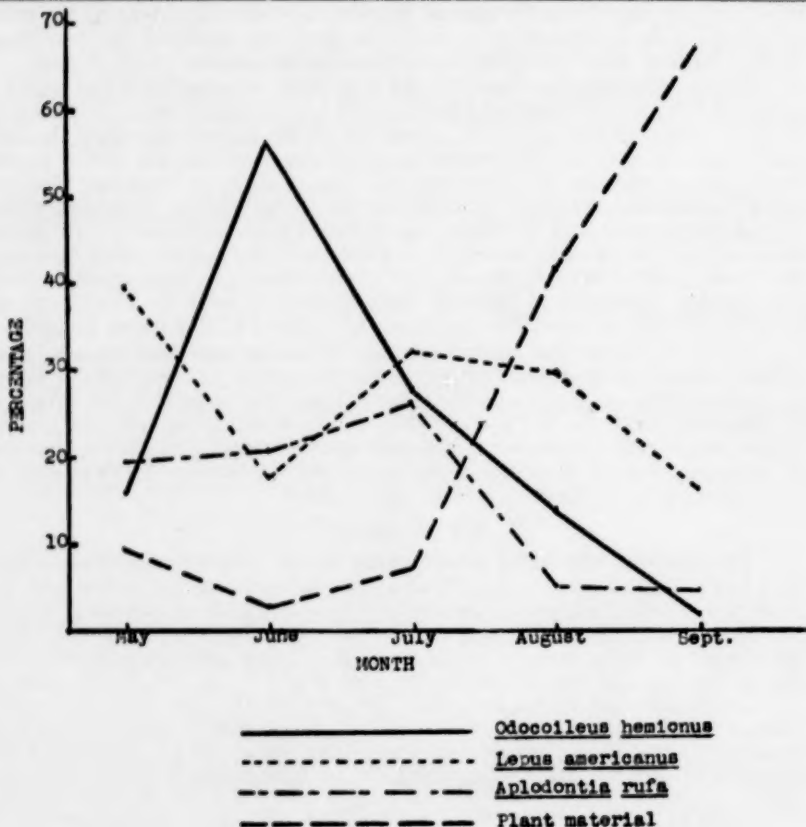


Figure 1

The subject of predator food habits is a controversial one. Whether the materials used is stomach contents or scats it is usually impossible to determine the age of the animals found or the form in which the animal was eaten, either fresh or as carrion. In the current study scat analysis was used to determine the food habits of the coyote. It was desired to determine the importance of deer as coyote food during the spring and summer. It seems fairly reasonable to assume that most of the deer remains found in the scats from the period May through September represent young animals. Fawns would appear to be more vulnerable to predation and also more likely to die from other causes and thus be available to the coyotes in the form of carrion. Therefore, the results obtained from this study are valuable not only as a means of establishing the importance of fawns as a coyote food but also in determining the period during which the summer juvenile mortality occurs. Even if most of the deaths are the result of factors other than predation, the occurrence of deer remains in the form of carrion would change if the mortality was restricted to a certain period. With these thoughts in mind a discussion of the results of the analysis of 151 coyote scats is presented below.

Birds and insects were found in some scats each month but at no time did they amount to a significant portion of the food items. Miscellaneous items were present in varying amounts and were probably picked up while the coyote was eating some other item. Murie (1940, p. 32) reports the burying and caching of food and if this occurs to any extent foreign material could easily be picked up. With the exception of the month of September black-tailed deer, Washington hare, mountain beaver, and plants were the most important food items throughout the entire period. Fig. 1 show the relative importance of these four items during the five months. The rise in the use of deer corresponds very closely with the peak of fawning in this area. Jones (1953) has shown that the peak of fawning probably occurs some time during the first or second week of June. During May, June and July the use of Washington hares varies inversely with black-tailed deer. This item appears to have the most consistent use throughout the summer. It is the most important food in May and July and the second most important food in August and September. Mountain beaver shows moderate use during the first three months but is insignificant in August and September. Plants are used very little in early summer but by August have become a very important item and in September make up almost 67 per cent of the total food volume.

CONCLUSIONS

Figure 1 does not necessarily show the effect of predation on young deer. Predation probably occurs to some extent but it cannot be assumed that the amount of deer remains occurring in the coyote scats is an exact indicator of the amount of predation occurring. Also, even if all the remains were the result of predation, the effect of this predation on the overall population would have to be considered. However, some conclusions may be made. The figure shows that the peak of deer use occurs in June, the same month that the peak of fawning occurs. Therefore, whatever the factor or factors are that cause the mortality among the juvenile deer they apparently are most effective during the first few days following birth. The behavior of the fawns and does during this period may have some bearing on the susceptibility of the young to mortality factors such as predation, starvation, or accidents. At this early period fawns obtain all their food from the doe and a poorly nourished doe might be unable to give enough milk to keep the fawn alive. The best defense a fawn has at this age is to remain lying down. The does apparently realize the effectiveness of this procedure and do not hesitate to leave the fawn hidden, and feed or lie down some distance away. It is of course possible that a coyote could find a fawn under these conditions, in which case the fawn could easily become a victim of predation. Any moving around by the young deer is usually in the company of

the doe and at these times the doe does not feed to any extent and is very alert to the fawn's activities. Deviations from this behavior were observed, resulting in the fawn becoming separated from the doe. Accidents or predation could occur under these conditions also. By late July or early August the young appear more independent. The does are less concerned with what the fawns do and feed freely while the fawns roam about. The fawns are very agile and could probably escape most attempts at predation. Behavior alone would indicate a minimum of mortality during August. This same conclusion can be made on the basis of the scat analysis data.

Deer apparently are a staple food item only when they are most easily obtainable. Mammals are depended upon for food more than any other food type, at least during spring and summer. Of the mammals utilized the Washington hare would appear to be the most important. This animal is readily available on the Clemons Tree Farm at the present time and although possibly more difficult to catch than some of the small rodents the energy required to catch one individual is probably not more than that required for an equal volume of smaller animals. By late summer berries have ripened and as Fig. 1 shows, plant material is the most important food item in September.

SUMMARY

It has been shown (Brigham, 1953) that the yearly fawn crop on the Clemons Tree Farm in western Washington is reduced over 50 per cent between the time of birth and the fall hunting season. From May through September of 1953 coyote scats were collected for the purpose of determining the importance of black-tailed deer in the diet of the coyote throughout the spring and summer. A change in the use by various predators of different animals before and after birth of the young of these animals has been noted by workers in other areas. Analysis of the coyote scats from the Clemons Tree Farm shows a peak in the occurrence of deer remains in the month of June. The peak of fawning in the area also occurs during this month. Behavior characteristics indicate that during the first few days following birth fawns appear to be more vulnerable to predation and also more likely to die from other causes such as starvation or accidents and thus be available to the coyotes in the form of carrion. Other mammals, particularly the Washington hare and the mountain beaver, are of varying importance during the period but by September the coyotes are feeding largely on plant material.

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JOHN MILTON EDSON

1861-1954

(Photo taken in 1929)

By Martha Reekie Flahaut

With the death of John Milton Edson on June 13, 1954, at the age of 93, the Pacific Northwest Bird and Mammal Society lost one of its last links with the early days of ornithology in the Pacific Northwest, as well as one of its most honored members. He was a charter member of the Society, and was elected an honorary life member in 1948. He was a pioneer in the civic growth of the Northwest as well as in the study of birds.

Mr. Edson was born in Chautauqua County, New York, in 1861, where his grandfather Edson had pioneered, and which his father had served in the State Legislature. He told me the bird collections of the Buffalo Museum of Natural History first aroused his interest in ornithology when he was 13 or 14 years old.

He was educated at Fredonia Institute and at Chamberlain Institute, both in New York state. His father taught him surveying, and he also learned the printing trade. He worked on a Buffalo newspaper for a time, and ran a newspaper in Sinclairville, New York, for a year. When he was 23 years old, he read a paper on "The Birds of Chautauqua County" before the Chautauqua Society of History and Natural Sciences at its semiannual meeting, Jan. 29, 1885.

The next spring he headed west, stopping in Kansas and Missouri to visit relatives, but eventually moved on to Dakota Territory, where he acted as printer and editor of the "Tyndal Tribune" for two and a half years. Then he went home for the winter. There he became well acquainted with a young school teacher, Alma Green, who was boarding in the family home.

In the summer of 1888 he arrived in Seattle, where he worked for the Post-Intelligencer and the Daily Enterprise. In August of that year he bought an interest in the "Whatcom Democrat," a weekly newspaper. With his partner, he established the first daily newspaper north of Seattle, the "Morning Gazette." Later he sold the Gazette, and engaged in job printing under the firm name of Edson and Irish. Well established in 1889, John and Alma were married in St. Paul, Minn. There were two children of this marriage, Arthur Allen and Emily (Mrs. Harry R. Mattox). Mrs. Edson died in 1930.

Mr. Edson was trustee and chairman of the school board about the time the city of Bellingham was born in 1903 through the consolidation of the four

small boom towns of Whatcom, New Whatcom, Fairhaven and Sehome.

Soon after his arrival in the Bellingham Bay region he was spending his spare time becoming acquainted with the birds. In 1908 he published "Birds of the Bellingham Bay Region" (*Auk*, 25: 425-439). When William Leon Dawson was gathering material for the book "Birds of Washington" (with J. Hooper Bowles, 1909), he obtained valuable help from Mr. Edson, who by that time was an authority on the birds of Whatcom County. Mr. Edson recorded a trip with Dawson in an article "Afield and Afloat with Dawson" (*Murrelet*, 10: 1, 22, 1929). His extensive collection of birds forms a documentary record of the birds of that area.

He became Registrar of Bellingham State Normal School, now the Western Washington College of Education, in 1913. He held this position for six years. Upon becoming Registrar he moved his collection to the College, and was designated as Curator. Previously the collection had been on display in a hall of the Chamber of Commerce building and in his home. When he finished his term of office at the College he was named Curator Emeritus.

In the summer of 1920 he joined Dr. Walter P. Taylor, Dr. William T. Shaw, and Mr. George G. Cantwell, members of a U. S. Biological Survey-State College of Washington team, in their studies of the flora and fauna along the northern boundary of Washington, especially in the rugged Cascade Mountains.

A long-time dream of Mr. Edson had been the formation of a public museum for Whatcom County, located in Bellingham. When the old City Hall was vacated, he began agitation toward preserving it as a museum. In 1940 the Bellingham Public Museum became a reality. Edson was named Curator without salary, moved most of his collection to it, rounded up cases, and encouraged the contribution of historic objects. With the interior freshly painted and repaired, the museum was formally opened on Jan. 23, 1941. A good collection for teaching purposes was left at the College.

In the fall of 1945 he moved to Seattle to be with his daughter. He was then 84 and frail, but for several years he attended those meetings of the Society which were held in the locality. With his severance of direct connection with the Bellingham Museum he was named Curator Emeritus. In April, 1953, he gave his collection of 700 bird skins and 275 mammal skins to the Washington State Museum at the University of Washington, Seattle, where it would be more easily available for research.

His connection with the study of birds was long and distinguished. He was elected to membership in the American Ornithological Union in 1886, as a result of his paper on the "Birds of Chautauqua County." Later he was made an honorary life member of the A.O.U. He joined the Cooper Ornithological Club in 1911, and the Pacific Northwest Bird and Mammal Society in 1920 at the time of its organization. He corresponded extensively with many of the important ornithologists, and his files are full of letters from the great men in that field.

Mr. Edson contributed numerous notes and articles to "The Murrelet." He also shared his knowledge freely with A. C. Bent for the Life Histories of North American Birds. No attempt has been made at this time to gather a complete list of his titles. Some of Mr. Edson's more important publications in addition to those mentioned are: "The Hooters of Skyline Ridge" (*Condor*, 27: 226-229, 1925); "A Reconnaissance of the Sage Country, Eastern Washington" (*Murrelet*, 13: 41-46, 1932); "Development of Young Tree Swallows" (*Murrelet*, 20: 11-13, 1939); "A Study of the Violet-green Swallow" (*Murrelet*, 23: 5-10, 1942).

He is survived by his son and daughter, a brother, Walter H. Edson, several grandchildren and great grandchildren.

AN INDICATION OF POPULATION MIXING IN CANADA GEESE

I. McT. COWAN

No other American anseriform has received the attention of systematists accorded the geese of the Genus *Branta*. In the past eight years three important papers have appeared (Aldrich, Conover, and Delacour) describing the views of these authors upon the contentions problem of speciation and subspeciation in this goose.

All base their conclusions on quantitative data but none support their conclusions by statistical analysis that would test the validity of their conclusions on quantitative characters. One of the disturbing factors in all attempts to elucidate the geographic variation within this group of geese has been the great variation adjudged by some to be of an individual nature and by others to indicate the presence of more than one breeding form in an area.

The purpose of this note is to call attention to the potential value of the increasing body of banding data in elucidating the possible extent of gene flow between the supposedly discrete breeding populations.

Incidental to our banding operations, directed largely toward Barrows goldeneye and bufflehead, we have, since 1948, banded a small number of geese on the lakes of the Cariboo district, British Columbia. This area is within the range ascribed to *Branta canadensis moffitti*.

In 1948 26 were banded on Chimney Lake, near Williams Lake, B.C. Four were adults, one a yearling and the remainder the flightless young of the year. In 1949 25 were banded on Phililloo Lake, near Lac la Hache, B. C., one of these was an adult, the rest flightless young. In 1951, 20 were banded on Simon Lake and two on Phililloo Lake, 14 of them young.

Twelve of the 1948 banding, 11 of the 1949 and 9 of the 1951 group have been shot and reported up until January 1954. Thus of 73 banded birds out for a total of 347 bird-years, 31 have been shot.

The localities of recovery are of interest in the present discussion. All but two of them were taken locally in B. C. (six), or in the central valley of California—Butte Co., Sutter Co., Solano Co., Glen Co. and Sacramento Co. (nine) or en route between these points via Skagit Valley, or Whitman Co., and Snake River, Washington, and Klamath Falls, Oregon. These demonstrate the conventional conservatism of a population.

The remaining two recoveries were made in the Bathurst Inlet area of Northwest Territories in the range ascribed by Delacour to *Branta canadensis parvipes*. Both were juveniles when banded. One, banded in 1948, was shot in September 1951, the other, banded in 1951, was shot in July 1952 when still not of breeding age.

While these numbers are too small to be reliable, it is of interest to note that over 6% of the recoveries from this small banding of geese recognized as *moffitti* were taken in summer, half a continent away, on the range of *parvipes*. It would be most worthwhile to search the banding files for other similar instances of birds marked while young and retaken on or near the breeding grounds of other supposed races. The results might aid in the solution of some of the problems now provoking students of this group.

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THE NESTING OF THE OREGON LEACH PETREL ON THE QUILLAYUTE NEEDLES

GORDON D. ALCORN and GARRETT EDDY

Little research has been done on the Oregon Leach Petrel (*Oceanodroma leucorhoa beali*) since the early work of Dawson (The Birds of Washington: 1909) off the Washington coast in July of 1906. The petrel is a bird of strange habits and, being largely nocturnal, does not lend itself to ordinary observation. It becomes necessary in order to observe the birds, then, to do most of the work during the night hours. The authors landed on Petrel Island on the afternoon of July 24th, 1954, and spent the night studying this unusual bird. It was our intention to cover approximately the same territory as Dawson with the view to comparing the behavior and size of the petrel colony after a lapse of almost fifty years.

The Quillayute Needles lie approximately one mile off shore about two miles south of La Push in Jefferson County, Washington. The Needles consist of several rugged rocks, most of which are too sheer to climb. The top of one, however, is accessible by a fairly easy approach from the southwest. A landing can be effected on a rock ledge and the top reached after a climb of about 75 to 80 feet. According to Dawson, this island is known as Dhuoyuatzachtahl or Petrel Island by the Indians.

The area at the top of the island is approximately 50 feet by 75 feet with a gentle slope to the west side. About one-half of the area of the top on the ocean side is covered by a turf of grass (*Hordeum* sp.) growing in thick, close clumps. According to Dawson, this turf in 1906 was the home of many petrel burrows. Now, however, this area is entirely inhabited by burrows of the Tufted Puffins (*Lunda cirrhata*). The upper half is covered with a thick growth of stunted, tough Salmon Berry (*Rubus spectabilis*) and Salal (*Gaultheria shallon*). These shrubs reach a height of from three to four feet with a thick, vigorous root growth. We found the area around these shrubs a honeycomb of petrel burrows in tiers. Dawson makes but passing mention of the burrows being under the shrubs. We were able to dig petrels from these burrows either during the day or night. When exposed to the daylight the birds would merely attempt to struggle farther back in the burrow to get away from the strong light. It was obvious that many burrows were of considerable age and were not used currently. The burrows were about three inches in diameter and did not appear to follow any pattern or direction. The sharp curves seemed merely to detour around larger roots. When handled the birds ejected copious quantities of petrel oil from their mouths.

The first bird made its appearance in the air at 9:20 p. m. on July 24, 1954. For about an hour there were a few flying about the summit of the island. Up to this time the birds were completely silent. After about 10:30 the birds in the air began to call in typical petrel fashion. A short time later we could detect the short warbling call of the adults still in the burrows. By midnight the air about our heads was alive with birds. The beams from our flashlights apparently were sufficient to blind them and they became greatly confused and would fly wildly in an attempt to get away from the light. If we stood quietly with our lights off, the birds seemingly were unaware of our presence and apparently could not avoid striking us. By following the sound of a bird in the burrow we had no difficulty digging it out at night. If one attempted to leave or enter the ground through the brush we could effect its confusion by catching it in the rays of our light and we could pick it up from the ground as it attempted to regain the darkness. The birds all had disappeared by daylight, either into the burrows or out to sea (males only?) as suggested by Dawson.

We did not estimate the numbers of petrels on the island in the burrows because we did not wish to disturb enough birds to give us a fairly accurate estimation. It seemed to us, however, that the entire population is much smaller than Dawson's estimate made in 1906. We agreed that on the night of July 24-25 that probably between 500 and 1000 birds were flying over Petrel Island. Adjacent islands probably have good colonies as the terrain seemed to be as good as that on Petrel Island.

Many questions concerning the habits of these petrels are still unknown. Where do they spend the day? Are all in the burrows or only a few? If only a few, where are the others? Where do they winter?

We are indebted to Chief Bos'n Mate Deboro and his men of the U. S. Coast Guard Station at La Push for their kindness and efficiency in getting us on and off the island without incident.

Puget Sound Museum of Natural History
Tacoma, Washington and Seattle, Washington

GENERAL NOTES

Use of Nest Boxes by Hooded Mergansers

While checking the usage of nest boxes installed primarily for wood ducks, *Aix sponsa*, in western Oregon the writer and M. S. Cummings discovered one occupied by a hooded merganser, *Lophodytes cucullatus*, on May 13, 1954, near Hillsboro, Washington County, Oregon. The female was caught in the box and banded and the 10 well-incubated eggs became an addition to my collection. This nest box is on a fir snag 15 feet above the water level of a small impoundment. The pond, constructed for irrigation purposes, covers about two acres and is in hilly and heavily-wooded terrain.

On May 18, five nest boxes near Amity, Yamhill County, were found to contain 15, 14, 12, 9 and 7 eggs, respectively. All of these eggs were cold and showed no signs of having been incubated or of having been disturbed recently. No down had been deposited in any of the boxes. Two weeks later these boxes were again visited and no sign noted that the mergansers had returned. Apparently the boxes had been used as "dump" nests.

Two nest boxes near Hubbard, Marion County, were used successfully by hooded mergansers in the spring of 1954. An inspection on May 25, revealed birds had hatched and left the nest boxes. One infertile egg in one box and two in another identified the occupants as having been hooded mergansers.—CHESTER E. KEBBE, *Portland, Oregon*, August 16, 1954

A Specimen Record of the Black Duck in Oregon

A Black Duck (*Anas rubripes*) was shot by a hunter on November 12, 1950, at the Summer Lake Game Management Area, Lake County, Oregon. Denver Flemming, a student duck checker employed by the State Game Commission recognized the species and persuaded the hunter to trade it to him for another more common duck. He then sent the specimen to the School of Game Management at Oregon State College. It was prepared as a study skin for the college collection where I examined it on February 13, 1954.

An unverified report of the occurrence of a black duck in Oregon was reported by C. R. Landon of the Oregon State Game Commission who reported banding one of this species near Ontario, Malheur County, Oregon, on March 5, 1951.

Permission to place this note on record was given me by Oregon State College and the Oregon State Game Commission.—STANLEY G. JEWETT, *Portland, Oregon*, March 16, 1954

Breeding of Northern Long-billed Curlews at Sprague Lake

On April 23, 1954 while on a field trip near Sprague (Colville) Lake in Adams County, I observed four Northern Long-billed Curlews (*Numenius americanus parvus* Bishop) which appeared to be nesting close by. The area was of bunch grass and small hills for several miles.

Failing to find a nest I returned on May 29. Before I had walked 50 yards toward the area I was met with quite a clamoring. The curlews would fly within six feet or so off the ground then would swing up in front of me some 15 or 20 feet away. They had increased to eight pairs now. One after another they would come and swoop toward me. After I walked about a mile they split up in pairs but there always was a sentinel to call out.

Soon I found a pair of young birds about three weeks old and very fast on their feet and very well camouflaged. Upon picking up the young to examine them the parents were very angry and flew close to the ground, sometimes clipping the top of the bunch grass. These were the only young I found but it was very evident there were other young in the area.—L. D. LAFAVE, Spokane, Washington

Some Oregon Nesting Records

During the past few years egg-collecting friends of mine have found several birds' nests in Oregon which seem worth recording. Since publication of these records is otherwise unlikely, I have made the following brief notes regarding them. Finders of the nests have consented to publication.

Anthony's Green Heron (*Butorides virescens anthonyi*). A set of five heavily incubated eggs was taken by Urban Kubat, assisted by his friend Lawrence Christen, near Portland on April 20, 1952. It was 30 feet up in a Douglas fir tree. They found a second nest with four slightly incubated eggs on April 3, 1954, in the same vicinity. This nest also was about 30 feet above the ground, in a cedar tree.

Hooded Merganser (*Lophodytes cucullatus*). Harry Schoenborn and his grandsons found a nest with six eggs, incubated about a week, near Indian Ford, about five miles west of Sisters on May 2, 1953. The nest was 10 feet up in a cavity of an aspen snag at the edge of a small creek, bordered by aspen trees, and flowing through Ponderosa Pine timber. It seemed a most unlikely place for a Merganser nest but there is no question of the identification. The thick-shelled white eggs, almost as round as billiard balls, are distinctive. By coincidence this nest held the same number of eggs, on the same date and with about the same degree of incubation as in a set I collected near Portland on May 2, 1936.

Gray Jay (*Perisoreus canadensis griseus*). Harry Schoenborn found a nest with three fresh eggs near his home southeast of Molalla on April 8, 1950. The following year, on April 14, Mr. Schoenborn took a set of four fresh eggs which, with nest, are in my collection. No nests were found in 1953 but on April 11, 1954 Mr. Schoenborn's grandson, Frank Schoenborn, found a third nest, also with four fresh eggs. This set now is in the collection of John B. Hurley of Yakima. All three of these nests were in the same general vicinity, at elevations of 700 or 800 feet, in small fir saplings. None was over 10 feet above the ground and, though in timber, were in exposed locations. Frank Schoenborn spotted the third nest from horseback, plucked it from the tree and rode on home with it without dismounting! Birds were sitting tightly on all three nests.

Hammond's Flycatcher (*Empidonax hammondi*). There are no published nesting records for this species from the Willamette Valley so I was surprised when Harry Schoenborn showed me a set of four fresh eggs taken near Molalla on June 30, 1952. The nest was saddled on top of a fir limb 15

feet up. Urban Kubat took a set of four well incubated eggs back in the hills from McMinnville on June 12, 1954. This nest also was saddled on top of a fir limb, 20 feet up. While field identification of this species is not possible, except perhaps from the call notes, I don't think there is any doubt about the identity of these two nests. Nest location and construction were entirely different from those of Wright's Flycatcher, the only flycatcher which frequents the same localities and lays unmarked eggs.

Olive-sided Flycatcher (*Nuttallornis borealis*). Wesley Batterson and I took a set of five half-incubated eggs of this species on the north fork of the Wilson River in Tillamook County on June 15, 1952. While there is some variation in the size of the eggs in this set, all were similarly marked and uniformly incubated. I don't believe that this species previously has been reported as laying more than four eggs.

Northwestern Golden-crowned Kinglet (*Regulus satrapa olivaceus*). Urban Kubat took, near Portland on May 2, 1954, a nest with six fresh eggs. It was 50 feet up and 20 feet out from the trunk of a fir tree. The bird had been observed by Lawrence Christen carrying nesting material three weeks earlier. A second set was taken four miles east of Government Camp, at an elevation of 4000 feet, on May 29, 1954. It was 12 feet up in the tip of a hemlock limb, and contained 10 fresh eggs.—W. E. GRIFFEE, Portland Ore. September 23, 1954

Another Record for the Occurrence of the West Mexican Tropical Kingbird in the State of Washington

On November 17, 1953, while returning late in the afternoon to Aberdeen after a day in the field, I was afforded the unexpected sight of a large flycatcher perched on a fence post at the side of the road. At this point, nine miles northwest of Hoquiam, in Grays Harbor County, the road bordered a large open marshy field, and it was at the edge of this field that the bird was located. It was a species totally unfamiliar to me, so it was collected and was later identified by Allen J. Duvall, of the Fish and Wildlife Service, as the West Mexican Tropical Kingbird, *Tyrannus melancholicus occidentalis*. Upon dissection it was found to be a male and, as far as could be determined, in good condition physically.

In the *Birds of Washington State* (Jewett, et al, 1953) this species is given the status of an accidental visitant in Washington, there being two previous records for its occurrence in the state. It is interesting to note that both of these are likewise for the coast region, and are represented by specimens taken on Destruction Island November 18, 1916, and at Westport November 26, 1927. A fourth specimen of *Tyrannus melancholicus* was taken on Vancouver Island, British Columbia, in February, 1923 (Munro and Cowan, Review of the Bird Fauna of British Columbia, 1947, page 239). —THOS. D. BURLEIGH, Fish and Wildlife Service, Moscow, Idaho

Nesting Record of the Yellow-headed Blackbird in Western Oregon

A colony of approximately 25 pairs of yellow-headed blackbirds, *Xanthocephalus xanthocephalus*, was found nesting in a tule and cattail marsh at Smith Lake, near Portland, Oregon, on May 10, 1952. Ten nests were discovered and each contained from one to four eggs. The writer again visited this colony on May 12, 1953, and on May 16, 1954. On the last visit an estimate of 50 pairs using the area was made. A short search of a portion of the marsh revealed 18 nests containing eggs.

This is the first nesting record of the yellow-headed blackbird in western Oregon. In this state it is a bird of the large marsh areas east of the Cascade Range. There are a few sight records of this bird in western Oregon during migrations.—CHESTER E. KEBBE, Portland, Oregon, June 17, 1954

A New Northern Record for Xanthus Murrelet, Brachyrhamphus hypoleuca

The publication of *Birds of Washington* by Jewett, Taylor, Shaw and Aldrich has served to remind us of an occurrence that we should have put on record long since.

On August 7, 1947, P. W. Martin was fishing for tuna at a point 125 miles S.S.W. of Cape Flattery when he became aware of scattered pairs of murrelets. The weather was unusually calm with a low swell running, a condition that made the birds easy to see and to hear. Indeed it was the call notes that first attracted attention as they were unlike those of the marbled and ancient murrelets common in these latitudes.

Several pairs were seen, each by itself rather than with the large flocks of shearwaters and other pelagic species gathered on feed. They were in the warm water area (water temperature 60° F. +) frequented by albacore, saury and other warm water species.

Two specimens were taken, a male and female, and proved to be *Brachyrhamphus hypoleuca*. This is the only reported occurrence of the species north of Californian waters. The specimens are in the Museum of Zoology, University of British Columbia.—I. MCT. COWAN and P. W. MARTIN

*A Sight Record of the Green Heron (Butorides virescens)
in Southern British Columbia*

Twice in the autumn of 1953 a green heron appeared in my bird sanctuary along Luckakuck stream at Sardis, near Chilliwack, B. C.

The first occasion was on October 1 when my attention was drawn to it by its unfamiliar appearance as it left a perch on the limb of a weeping willow tree. It flew across a pond and alighted in an alder. I followed it and was finally able to approach to within 20 yards to study its plumage and general characteristics. The bird conformed closely to the description of the Anthony Green heron as described in Hoffman's *Birds of the Pacific States*. The bird was seen again by me on October 17 and was seen also about the same time by my neighbor Jack Pilling and by H. Densham about half a mile further down stream.

This is the first recorded occurrence of the species in British Columbia.—OLIVER N. WELLS

Sight Record of Two Northern Water Thrushs for Spokane

On June 6, 1954 while about to leave my home at about 5:00 a. m. I observed a Northern Water Thrush (*Seiurus noveboracensis*) feeding and running about in my garden. It would run a few steps then stop and teeter like a Spotted Sandpiper or Water Ouzel. The Water Thrush then flew and lit on a clothesline pole about 15 feet away. It was facing away from me but its eye stripe was very noticeable.

It remained for about a minute more and then flew away. I searched the neighborhood very thoroughly but it was not observed again.

On July 30, 1954, about 5:00 a. m., another was observed on Havermale Island in the Spokane river, which was then at a very low level affording feeding places. The bird was heard calling from a small bush but when approached it flew to the river. Its flight was very fast and erratic.

These birds were in both cases observed within 15 to 20 feet.—L. D. LAFAVE, Spokane, Washington

Sight Record of the Harris Sparrow at Fall City, Washington

For two months beginning April 18, 1954, an immature male Harris' Sparrow (*Zonotrichia querula*) has been observed at the feeding table of J. Jarrett at Fall City, Washington. This observation is unusually gratifying as I have sought this sparrow on the west side of the Cascade for years.—WALTER M. HAGENSTEIN, Medina, Washington

Hudsonian Godwits on Cook Inlet, Alaska

On July 28-30, 1951 I collected shorebirds near the mouth of the Beluga River about 30 miles northwest of Anchorage. During this period about 25 Hudsonian Godwits (*Limosa haemastica*) were observed on the mud flats. Several immature birds and one molting adult were collected. These specimens are now in the Conner Museum and the Museum of Vertebrate Zoology.—GEORGE E. HUDSON, Conner Museum, State College of Washington, Pullman, Washington

The Common Teal (Anas crecca) Taken in Oregon

David Narver of the Oregon Game Commission collected an adult male of the Common Teal (*Anas crecca*) on Sauvie Island, Multnomah County, Oregon on January 20, 1954, who sent it to the Department of Game Management at Oregon State College, Corvallis, Oregon, where it was prepared as a study skin by Mrs. Pat Hansen. The bird is in fine adult winter plumage and is now No. 9901 in the College Museum of Natural History. This is the first specimen record of the occurrence of this bird in Oregon. Permission to place the specimen on record was given me by Oregon State College, Department of Game Management after I had examined it on April 2, 1954.—STANLEY G. JEWETT, Portland, Oregon.

Northern Extension of the Range of the Cowbird in Western Oregon

On August 23, 1953, Ed Butcher found a dead cowbird (*Molothrus ater artemesia*) on his farm about one mile south of Woodburn, Marion County, Oregon. When I examined this bird some months later I found it to be an immature male in first fall plumage.

During a recent visit Mr. Butcher told me of seeing two adult males near his barn on March 3, 1954.

During the past thirty years there has been a noticeable increase in numbers of the Green Heron, Common House Finch, California Woodpecker and Cowbirds in the Willamette Valley of western Oregon.—STANLEY G. JEWETT, Portland, Oregon, March 16, 1954

Nesting Record of the Cowbird in Western Oregon

The Nevada cowbird, *Molothrus ater artemisiae*, has apparently extended its range westward to become a fairly common bird in the Willamette Valley. These birds have been frequently observed by the writer in the vicinity of Portland, Oregon, during the spring months of 1953 and 1954.

On May 6, 1954, I discovered the nest of a Cassin's vireo, *Vireo solitarius cassini*, containing two vireo eggs and one cowbird egg. These eggs are now in my collection. The nest was located in a brushy area along McKay Creek, near North Plains, Washington County, Oregon. It was hung in the crotch of a mock orange, 18 feet above the ground.—CHESTER E. KEBBE, Portland, Oregon, August 16, 1954

SOCIETY MEETINGS

The Pacific Northwest Bird and Mammal Society held its annual meeting at the Student Union Building, University of Washington, Seattle, April 24, 1954.

The annual report of the secretary was read and approved.

Charles E. Trainer of Kent, Washington, was elected to membership.

H. Ward Beecher was re-instated to membership.

The ballots were counted and the following list of officers declared elected:

President: Gardiner F. Jones

Vice-president: Dr. Murray L. Johnson

Secretary: Dr. Burton T. Ostenson

Treasurer: William D. Rourke

Regional Vice-president: Oregon, Dr. Kenneth Gordon; B. C., R. York Edwards; Eastern region, John B. Hurley.

Trustees: Dr. Ian McT. Cowan (1955); Dr. Richard Snyder (1956); Garrett Eddy (1957).

The following appointive officers were announced:

Regional representative of Alaska: Dr. Brina Kessel.

Editor: Dr. Gordon D. Alcorn.

Associate Editor for Ornithology: Stanley Jewett.

Associate Editor for Mammalogy: Dr. Ian McT. Cowan.

Librarian, Historian and in charge of subscriptions, back issues, library and subscriptions to institutions: Mrs. Martha Flahaut.

Committees:

Membership: Dr. Murray L. Johnson, chairman; R. York Edwards, John B. Hurley, Dr. Kenneth Gordon.

Publications: Dr. Ian McT. Cowan, chairman; Dr. Burton T. Ostenson, Dr. Earl J. Larrison, Dr. James A. McNab, Dr. Murray L. Johnson, Dr. Clifford Carl.

Auditing: Dr. Richard C. Snyder, chairman; Dr. Burton T. Ostenson, Garrett Eddy. Program: Garrett Eddy, chairman; R. York Edwards; John B. Hurley, Dr. Kenneth Gordon.

The following program was presented:

Dr. R. A. Huestis on *Inherited Jaundice of Newborn Deer-mice*, described an inherited anemia found in laboratory *Peromyscus* characterized by an enlarged dark spleen and destruction of the red blood cells.

Burton Lauckhart on *New Concepts of Population Dynamics*, described carrying capacity of the game range as limiting factor on populations.

Fred Zwickel on *Mourning Dove Studies in Central Washington*, gave data obtained from first hunting seasons of this bird in Washington, including hunting success and adult-juvenile ratios.

Jim Brigham on *Predation on Juvenile Deer*, gave observations of predation by bear, coyotes and ravens at Clemens Tree Farm. It was concluded, however, that deer were not a staple item of food for these predators.

Following the dinner at the Wilsonian Hotel, Alex Walker showed a series of striking color slides depicting scenes from Oregon. Dr. R. T. Congdon showed beautiful color movies taken at Malheur Wildlife Refuge in Oregon.

Walter Eyerdam showed specimens of Miocene fossils from the beaches of Newport, Oregon.

BURTON T. OSTENSON
Secretary

The Pacific Northwest Bird and Mammal Society held a joint meeting with the Cooper Ornithological Club as part of the Pacific Division A.A.S., at the Washington State College, Pullman, Washington, June 22, 1954.

Under the local chairmanship of Dr. George Hudson, the following program was presented:

A Preliminary Report of Small Mammal Repopulation of the Kautz Creek Flood Area of Mt. Rainier, Burton T. Ostenson, Pacific Lutheran College, Parkland, Washington, and Murray L. Johnson, Tacoma, Washington, (slides).

A Preliminary Report of Bird Populations of Sample Sagebrush Areas in the Columbia Basin of Washington, George Hudson, State

College of Washington, Pullman (slides).

Why Birds Sing, Robert C. Miller, California Academy of Sciences, San Francisco.

New Zealand's Rediscovered Takahe, D. S. Farner, State College of Washington, Pullman (movie).

Moult of the Chipmunk, *Eutamias amoenus*, Harold E. Broadbooks, Radioisotope Unit, Veterans Hospital, Seattle.

This was a well-attended meeting with about 70 present.

BURTON T. OSTENSON
Secretary

A regular meeting of the Pacific Northwest Bird and Mammal Society was held Saturday, October 16, 1954 at the Provincial Museum, Victoria, B.C. The meeting was called to order by President Mr. Gardiner Jones who introduced Mr. R. York Edwards, regional Vice-president for British Columbia.

With Mr. Edwards acting as chairman the following program was presented:

Mr. Edwards discussed *Snow and Deer Abundance in British Columbia*. There have been three major periods of ungulate scarcity in British Columbia since 1910, and these coincide with periods of deep snows in the province. During shallow snow periods ungulates become abundant. We are presently experiencing such abundance throughout the province.

Dr. Ian Cowan of the University of British Columbia presented the following notes: The University of British Columbia Department of Zoology with Dr. Udvardy is currently reporting excellent results for migration studies of birds at Point Roberts, Washington. Dr. Cowan announced a long and varied list of projects in bird and mammal research now being undertaken by graduate students at U.B.C.

Mr. Leo Couch observed that the Douglas Ground Squirrel is increasing considerably its range in eastern Washington. He doubts that this species will appear in the western part of the state in the near future.

Mr. Garrett Eddy reported collecting the Black Tern from Admiralty Inlet just west of Whidby Island.

The evening session opened when Mr. Edwards introduced Mr. F. L. Beebe of the Provincial Museum who presented a unique paper on the ancient sport of falconry. He discussed its history, the training of birds, the fundamental differences between hunting methods and the different qualities of falcons and accipiters.

Mr. Theed Pearce reviewed the 1954 Ornithological Congress in Switzerland which he attended in May. He reported that 600 delegates were in attendance and that world ornithological interest seemed currently to emphasize behavior.

Dr. G. Clifford Carl, director of the Provincial Museum, who was host at the meeting, invited the members and guests to return soon to Victoria.

GORDON D. ALCORN
Secretary, pro tem



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